

## 10.

The External Genitalia of the Gorilla, *Gorilla gorilla gorilla* (Savage & Wyman).

LEONARD J. GOSS.

Veterinarian, New York Zoological Park.

(Plates I-IV).

Determination of the sex of live gorillas is considered by many practical animal men to be difficult if not impossible. The reasons are not far to seek: the genital area is well covered with hair; the external genitalia are small for the size of the animal; live gorillas can seldom be confined so as to permit close observation and manipulation; comparatively few gorillas have been examined and reported upon by qualified anatomists.

Casual examination is always likely to be confusing, especially in the case of immature specimens, and this is especially true if both sexes are not available for comparison or if the observer is lacking in experience.

This paper describes briefly and illustrates the external genitalia of both male and female gorillas, variously at immature, sub-adult and adult stages. The series of photographs is not complete, chiefly because of the difficulties of handling mentioned in the first paragraph.

The animals upon which our observations were made and from which the illustrations were taken are:

1. Makoko, a male lowland gorilla, *Gorilla gorilla gorilla*, received at the New York Zoological Park in September, 1941, when its age was estimated at 2 to 3 years. It weighed 28 pounds on arrival, and is estimated to weigh 260 pounds now. See Figures 3, 4, 5 and 9.

2. Oka, a female lowland gorilla, received at the New York Zoological Park from the same source and at the same time as Makoko. Estimated age on arrival, 2 to 3 years; weight on arrival 20 pounds; weight at present (March, 1947) 192 pounds. See Figures 1, 2, 6, 7 and 8.

3. Janet Penserosa, a female lowland gorilla, from west central Africa. This animal was received at the New York

Zoological Park on October 31, 1928, and was estimated to be 18 to 20 months old. She weighed 17½ pounds on arrival. She was disposed of by the Zoological Park in 1940. Figure 10 (from Noback) was made after the gorilla had begun to menstruate, which was considered to be at the beginning of her ninth year.

4. Very large adult male shot by the late Harry Raven in 1930 in the French Cameroons, and now preserved in the American Museum of Natural History. See Figure 11.

Schultz (1927) states that the external genitalia of the female gorilla fetus and of the human fetus of the same stage of development are quite similar. In contrast to the human, he points out, however, that the slit on the lower side of the clitoris in the gorilla is very little developed and that the labia majora are relatively smaller than those of the human fetus but that they are high and clearly visible. Schultz asserts that in postnatal life the labia majora undergo a marked reduction in the three larger apes (gorilla, orang-utan and chimpanzee) and that many authors state that they are entirely missing. Bischoff (1879) studied three young specimens and Gerhardt (1906) a single adult and did not find labia majora. Deniker (1885) concluded from his material that the labia majora in gorillas and oranges do not completely disappear. Schultz finally takes a middle course by saying: "It is certain that these structures are laid down in fetal life, but, whereas, in man they persist throughout growth, in the anthropoids they undergo a process of atrophy which, in many cases, leads sooner or later to complete disappearance."

Wislocki (1932) thinks that the labia minora are relatively larger in man than in apes with the exception of chimpanzees and that the clitoris is larger in the great

apes than in man and it invariably has a median ventral furrow which is most prominent in the gibbon.

Pocock (1925) refers to sketches and a description of the penis of the gorilla (*Gorilla gorilla*) by Duvernoy in 1855. Duvernoy shows a peculiar expansion on the end of the penis which he compared to a fungus and claimed that in this respect the gorilla differed from all other anthropoid apes.

From the figures presented in this paper, it is immediately apparent why there has been confusion regarding the sexing of gorillas. We are unable to subscribe to all that is found in the literature regarding the external genitalia. Perhaps some of the conflicting information can be attributed to the difference in the ages of the specimens described or in the individual differences in the development of changes (maturing) of the specimens. Certainly we cannot agree with Duvernoy regarding the fungus-like enlargement on the end of the penis. We have seen no such structure in either immature or adult males.

Our observations are not totally in agreement with the aforementioned literature. According to Schultz (1925), the slit in the lower side of the clitoris of the gorilla fetus is very little developed in contrast to that of the human. Our Figures 1 and 2 show the slit extremely well developed in a two- to three-year-old specimen. In the same specimen, five and one-half years later (Figures 7 and 8), the entire clitoris is scarcely perceptible and the labia are well developed. Yet Noback's picture (Figure 10) of a nine-year-old female shows a very large clitoris with relatively undeveloped labia. In fact, this nine-year-old menstruating female's external genitalia closely resemble those of our two- to three-year-old male (Figure 3). The well developed labia in Figures 7 and 8 do not support the statements of Schultz, Bischoff, Gerhardt and others who claim that the labia are markedly reduced or entirely absent in the gorilla, orang and chimpanzee. If we use Noback's picture (Figure 10) and our Figures 1 and 2, we would agree with Wislocki that the labia minora are relatively smaller and the clitoris relatively larger than in man. Figures 7 and 8, however, would not support this idea.

McKenney et al (1944) make no mention of a fungus-like enlargement on the free end of the penis of the 580-pound male mountain gorilla from the San Diego Zoo. At autopsy, the penis "approximated 10. cm. in length and 1.5 cm. in diameter." Figure 11, likewise, shows no such formation on the Raven specimen at the American Museum of Natural History.

#### SUMMARY.

1. Eleven figures of the external genitalia of both male and female gorillas are presented.
2. Discrepancies encountered in the literature in descriptions of the external genitalia are pointed out.
3. It is suggested that some of the differences may be accounted for by age variations in the specimens described or by individual differences in development or rate of maturity of the specimens.

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## EXPLANATION OF THE PLATES.

## PLATE I.

- Fig. 1. Oka, ♀, 2-3 years old, weight 20 pounds. Lying on back with pelvic limbs spread apart. Digital pressure was applied on each side to part vulva and extrude large elliptical clitoris with ventral cleft. Note small labia, short perineum and absence of scrotum. **A**, Anus; **C**, Cleft in clitoris.
- Fig. 2. Oka, ♀, 2-3 years old, weight 20 pounds. Same position as in Figure 1. **A**, Anus; **CL**, Clitoris.

## PLATE II.

- Fig. 3. Makoko, ♂, 2-3 years old, weight 28 pounds. Lying on back with pelvic limbs apart. Note longer perineum. **A**, Anus; **T**, Testes; **P**, Penis (note urethral opening).
- Fig. 4. Close-up of Figure 3, showing median raphe of scrotum, penis slightly elevated. **MR**, Median raphe.
- Fig. 5. Makoko, ♂, 2-3 years old, weight 28 pounds. Same position as in Figure 3. Penis extended full length. **A**, Anus; **T**, Testes; **MR**, Median raphe.

## PLATE III.

- Fig. 6. Oka, ♀, 7½-8½ years old, weight 192 pounds. In standing position. **A**, Anus; **V**, Vulva.

Fig. 7. Close-up of Figure 6. **A**, Anus; **V**, Vulva.

Fig. 8. Same as Figure 6 and 7, but showing animal lying on right thigh with vulva parted. Note labia and clitoris. **A**, Anus.

Fig. 9. Makoko, ♂, 7½-8½ years old, weight estimated to be 260 pounds. Standing on all fours with head directed toward floor. Note well-developed scrotum, testes and long perineum. Penis cannot be seen, but is anterior to scrotum. **A**, Anus; **S**, Scrotum.

## PLATE IV.

- Fig. 10. (From Noback). Janet Penserosa, ♀, about 9 years old, in copulative stage of menstrual cycle. (Anus is below the clitoris; not visible in this figure). **CL**, Clitoris.
- Fig. 11. From skin of large adult male (Raven specimen) in American Museum of Natural History preserved collection. Penis about 2 inches long; opening is probably larger than normal meatus because of skinning. **P**, Penis; **T**, Testes in scrotum.

Figures 1-9 and 11 by Staff Photographer Sam Dunton.